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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/792,054	03/02/2004	Avgerinos V. Gelatos		4738

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APPLIED MATERIALS, INC.  
Patent Department, M/S 2061  
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EXAMINER

PAIK, SANG YEOP

ART UNIT PAPER NUMBER

3742

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/792,054

Applicant(s)

GELATOS ET AL.

Examiner

Sang Y Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 25-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/2/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-24, drawn to an apparatus, classified in class 219, subclass 444.1.
  - II. Claims 25-31, drawn to a method, classified in class 118, subclass 715.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process for using the product can be practiced with another materially different product such as a wafer, and the product as claimed can be used in a materially different process such as cooking or baking.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Janah on or about 12/3/04 a provisional election was made without traverse to prosecute the invention of I, claims 1-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Objections***

6. Claim 3 is objected to because of the following informalities: claim 3 depends onto itself. Since this error seems to be a typo, claim 3 is treated as being dependent on claim 1, but it needs to be amended to reflect correct dependency. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 9, there is no proper antecedent basis for "the electrode lead".

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 1-5, 7, 8, 11-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 6,423,949) in view of Chang (US 5,916,370) or Berkman et al (US 4,090,851), and Brown et al (US 6,046,758) or Todd (US 6,630,413) .

Chen shows a substrate support having a ceramic block made of aluminum nitride with a pocket to receive a substrate therein, a plurality of independently controlled resistance heaters having 2-4 ohms disposed in the ceramic block, the heater leads extending out of the ceramic block and extending through a post. However, Chen does not show the claimed ceramic coating comprising an amorphous Si-H-N-O compound.

Chang show a ceramic support provided with a protective coating to further protect the ceramic support. Berkman also shows it is known in the art to provide a protective coating such as silicon nitride over a ceramic support. Berkman also teaches that silicon nitride provide good mechanical and chemical resistance as well as good thermal conductivity.

Brown shows an amorphous protective coating comprising Si-H-N-O compound to produce a highly wear and abrasion resistant coating. Brown further shows that the protective coating can be in the range of .5-20 microns. Todd also shows the amorphous silicon nitride material having Si in the range of 40-99.5 wt %, N in the range of .25-40 wt %, O in the range of 0-49.9 wt %, and H in the range of 20% or less of the silicon nitride.

It would have been obvious to one of ordinary skill in the art to adapt Chen with the teachings of Chang and Berkman to provide the ceramic block with a protective coating including silicon nitride to further enhance the mechanical and chemical resistance, and further adapt with the teachings of Brown and Todd with the coating comprising Si, H, H and O to produce a mechanically and chemically strong protective coating.

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11. Claims 6, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Chang or Berkman, and Brown or Todd as applied to claims 1-5, 7, 8, 11-15 and 17 above, and further in view of Burkhardt et al (US 6,469,283) or Tachikawa et al (US 6,376,808).

Chen in view of Chang or Berkman, and Brown or Todd shows the structure claimed except an electrode in the ceramic block.

Burkhardt and Tachikawa show it is well known in the art to provide an electrode in the ceramic body. In view of Burkhardt or Tachikawa, it would have been obvious to one of ordinary skill in the art to adapt Chen, as modified by Chang or Berkman, and Brown or Todd, with an electrode in the ceramic body to electrically attract or chuck an object such as a wafer to the heating surface of the ceramic support.

12. Claims 10, 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Chang or Berkman, and Brown or Todd as applied to claims 1-5, 7, 8, 11-15 and 17 above, and further in view of Ishii (US 5,851,298) or Hwang (US 6,009,831).

Chen in view of Chang or Berkman, and Brown or Todd shows the structure claimed including a process chamber, a gas distributor, a gas exhaust, and the controller having programs to independently control the heating elements. However, Chen does not show a gas energizer such as RF generator or microwave generator.

Ishii shows it is known in the art to provide a microwave generator to generate microwave that would consequently generate magnetic field with the magnetic coil with the process chamber to excite the gas introduced therein. Ishii further shows using the electrodes in the ceramic block for the RF electrodes. Hwang also shows it is known in the art to use the

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showerhead in the gas processing chamber to as the RF electrode and the electrode in the ceramic body support substrate as another RF electrode to generate the RF there between.

In view of Ishii or Hwang, it would have been obvious to one of ordinary skill in the art to adapt Chen, as modified by Chang or Berkman, and Brown or Todd, with the gas energizers such as the RF or microwave generator to excite or energize the gas in the chamber to further enhance the desired process.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (9:00-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 571-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Paik

Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp